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ABSTRACT

The articles in this document present ways in which teachers can teach effectively in classrooms made up of a more diverse population (in terms of ability) than has been the case in the recent past, when more supplemental services were available outside the classroom. Topics of interest are working with smaller units in the teaching of reading, grouping for reading instruction, practical suggestions for upgrading a school's reading program, a meaningful language experience with fifth graders, games in the classroom, computer-assisted instruction (CAI) and learning basic skills, a report from a user of CAI, CAI and the teacher of the future, and instructional frames and other content games at the secondary level (with supplementary material). (JM)

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11th Annual Spring Reading Conference

what to do if they . . . . .

FIRE

THE REMEDIAL READING TEACHER?
THE SPECIAL EDUCATION TEACHER?
THE LEARNING DISABILITIES TEACHER?

ANSWER: Provide for greater individual differences in the classroom . . . HOW? . . . See below.

CS003490

Edited by

JANET B. STEIG
Rutgers Reading Center

program

8:15 a.m. REGISTRATION AND COFFEE

9:00 a.m. MOTIVATION TECHNIQUES YOU CAN USE TO INCREASE READING AND LANGUAGE SKILLS—*Dr. Arthur Heilman*

TEN GROUPING PATTERNS FOR READING INSTRUCTION—*Dr. Edward Fry*

3 SPECIAL INTEREST GROUPS

a. USING COMPUTER AIDED INSTRUCTION FOR SPECIAL POPULATIONS

DR. MARTIN KLING
Rutgers University
Reading Center &
DORIS SELUB
Public Schools,
Freeport, New York

There are some special interest groups in the State of New Jersey such as the urban population of the Newark Schools and the special educators of the deaf that are using or plan to use CAI in the near future. Many other special areas of education could use CAI in Reading in such areas as prisons, special education, remedial and superior student populations.

b. SECONDARY READING PROGRAMS NEED HELP

DR. JOSEPHINE GOLDSMITH
Rutgers College &
DR. ARTHUR HEILMAN

A recent survey of N.J. secondary schools found that only 3% teach reading as part of the perscribed curriculum. This special interest group will have attendance limited to secondary teachers and administrators who want to do something about getting reading into the secondary school curriculum. It will discuss content and techniques of secondary reading instruction, as well as value judgment for school boards.

c. ELEMENTARY READING LESSONS EXTENDED TO CARE FOR A WIDER RANGE OF ABILITIES

DR. JOSEPH ZELNICK
Livingston College
Rutgers University &
DR. EDWARD FRY

If indeed there is a "t to be less help from special service personnel now and in the future, this means that the regular classroom teacher may have to adjust her methods to accommodate wider differences of ability. It might also mean that remaining special personnel such as the remedial reading teacher might have to engage in a different role tending more toward aiding the classroom teacher with newer methods and materials rather than in teaching five children at a time removed from the classroom for 40 minutes.

• motivation techniques you can use to increase reading and language skills

Dr. Heilman is a national authority on te[illegible]cher training in reading and is particula[illegible]y well-known for his work in phonics; however, he is currently concerned with "What do you do after you have given phonics instruction?" His answer is to use the classroom motivational techniques which he will tell you about at the conference.

DR. ARTHUR HEILMAN

Pennsylvania State University
Author of Principles and Practices of Teaching Reading and many other materials.

• ten grouping patterns for reading instruction

Grouping practices range from the traditional classroom divided into three groups to individualization, but here are some other suggestions you might try. Removing children for remedial instruction is only one of the grouping alternatives.

DR. EDWARD FRY

Rutgers University Reading Center
Author of *Reading for Classroom and Clinic* and other materials.

3 special interest groups

After the opening addresses the audience will split into three special interest groups for the rest of the day. Each special interest group will be repeated once.

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PREFACE

We are not advocating that anyone be fired. But the cold hard facts are that this year there is a definite shrinking of all kinds of personnel. The Special Education movement is headlong into "mainstreaming" or putting mentally retarded children into regular classrooms. Title I funds are being cut. School budgets are failing at an alarming rate in voters' revolts.

All this adds up to fewer supplementary and special services. And it means more diverse children in the regular classroom.

Modern teachers used to meeting children within a narrow age and ability band seem to forget the one-room schools upon which this nation was built. Some of them appear to be unaware of methods, grouping, and materials which can provide for a diversity of academic abilities.

Probably one-room schoolhouses are not viable today, but it looks like we will have to live with more diversity in the next few years. Let us prepare our classrooms for it.

April 1976 Edward Fry

WORKING WITH SMALLER UNITS IN THE TEACHING OF READING

ARTHUR W. HEILMAN
THE PENNSYLVANIA STATE UNIVERSITY

It is well known to all of us that in recent years reading instruction in American schools has been widely criticized. The fact that some critics start with erroneous premises and end up with biased and distorted views is of little consolation when we know that much of the criticism is warranted. In theory, it would appear that teachers of reading would be in a position to function best as enlightened critics. However, we sometimes fail to see the forest because of the trees. Occasionally, we defend practices simply because we have been following them for years and this seems to be some sort of justification for what we do.

As teachers of reading, we do need to evaluate teaching practices in order to ascertain what we do to prospective learners as we go about teaching them to read. With this in mind we will start with a premise which in essence is a criticism of reading instruction. The premise is that too often our reading instruction fails to emphasize to students that reading is a language process. When this occurs, we fail to build on what the student brings to the classroom--namely his mastery of language.

We fail to transmit to children an appreciation of the power of language, the beauty of language, and the precision that can be attained in language usage. In too many schools reading is taught as a mechanical process--a series of mechanical skills. Many children fail to recreate the melody of language when they read. They fail to grasp the fact that what they are reading is language. As teachers we must remember that the only magic available to the school is language. Everything else is rote and ritual--a replay of "The Way It's Spozed to Be."

Since many children do not have exciting growth-provoking experiences in learning to read, they do not develop a felt need for more reading. At this point, we have to "con" them a bit. We promise them a sort of "pie-in-sky" in the "sweet-by-and-by." We have built up quite a body of folklore about all the joys, happiness, and self-fulfillment which accrues to children after they have learned to read. Life in school, so this folklore goes, becomes pleasant and rewarding, a panorama of beautiful vistas--"you will read things that grab your minds, and fire your imagination." This is a fallacy, of course, and children know it is. Frequently, reading in the school is not an exhilarating, inspiring experience. Textbooks in reading, science, social studies do not always lead children into mind-expanding journeys. Reading assignments are not "frigates which bear them lands away."

Recently a retired teacher of reading did some research and wrote a little book called Children's Answers to: What is Reading [1]. Note some of the answers that fifth and sixth grade

pupils gave in response to this question.

"Reading is putting letters together to make a word."

"Reading is a subject in which you have a book which has storeys which you read. You also have a workbook which has something about the story which you read in the textbook. Also in your workbook you learn the vowel sounds."

"Reading is a good thing to do when you don't have anything to do."

"You should reade all the time when you are not doing anything at all."

"Reading is to see something that has words in it and to pronounce them to your selves while you read it."

"Reading is knowing the words better and learning the words better."

"Reading is nouns, verbs, adjectives, adverbs, pronouns and plain words. It is a way of learning loads of words."

"Reading is looking at a book or paper and sounding out the letters and by doing what you are making words. Making those words as you go along is what is called reading."

The majority of children's responses in this little book showed that they viewed reading as a mechanistic process, a meaningless chore. For these children, and for the schools that taught them, the actual process of learning to read was a goal in itself. According to Dr. Jerome Bruner in his speech to the I.R.A. in Detroit, learning the process of reading is not a self-sustaining goal. He stated learning to read takes the child "out of the action" unless an intellectual component--or meaning--becomes an integral part of the activity.

Much the same point was made some years ago by Francis S. Chase when he stated that two types of illiteracy threaten civilization! One is the nonreader, and the second he calls the "higher illiteracy wherein people who can read are incapable of thinking and feeling while they read."

Fifth and sixth graders are not the only educational casualties in our schools. Recently I gained some insight into how the school conditions college students to view reading, and how reading as practiced in our schools leaves much to be desired. Working with a group of college students, all of whom were prospective secondary teachers, our objective was to illustrate the power of language and how serious reading affects our lives. The following impromptu assignment was given in class:

"Assume that everything that has ever been written will disappear at the end of the hour. However, each of you

can preserve those statements that have meant something to you. Write any quotations or passages that you would like to see preserved for future generations."

The students sat and stared at each other and then at their notebooks. Sensing a bit of a problem, it was then suggested that if the students could not actually quote material they could state it in their own words. To make a long story short, more than half of the class never did write anything. Everyone could have summarized something from a textbook that they had read that week, but they knew this wasn't anything they would want to preserve for posterity. They could have also written the titles of plays and novels that they had received credit for reading in high school and college, but it was very difficult for them to come up with a concept or statement from all of this reading. This surprised us. These students had a minimum of 14 years of formal instruction, had read thousands of books, and didn't have a single sentence to show for it.

We stopped and discussed this odd situation and we sought for explanations. It was suggested that maybe this happening wasn't significant, but one got the impression that the students thought it was. The question was raised as to whether this could in any way be related to the recent demands for relevance in education. This thought had not previously occurred to these particular students because they hadn't realized they were like this. They had never really missed what their education had failed to provide them.

How do we produce fifth and sixth graders who define reading so mechanistically and college students who recall nothing they have read that deserves to be preserved? In essence we teach beginning reading in such a way that children fail to recreate the melody of language. They decode letters and words and do not experience reading as a creative activity. Then as soon as they learn some of the mechanics of reading, the school demands great quantities of reading, always assigning large units of print. "Read chapter eight in social studies text, chapter five in the science text, finish Charlotte's Web and hand in a book report." Later we hand out lengthy bibliographies and ask students to read six novels on this list--"and read them critically!"--"For Monday complete Acts I-II of Hamlet."

In essence we do not teach children how to mine a sentence or a paragraph, but we expect them to read chapters and books critically. Obviously no one can read a book or chapter critically unless he can read sentences and paragraphs that way. The school seems to have little time for analyzing the meaning of short passages of print because it is so busy assigning larger units. Thus, much of our teaching behavior is self-defeating.

Having started with the premise that there is something wrong with the way we teach reading, we turn now to a modest proposal that might have some merit. Every day that a child is in school, let him come in contact with a bit of reading that says

something--that moves him. Help children read, analyze, understand, and appreciate short passages of reading material. Obviously the sample we select should be among the most incisive, most beautiful, inspiring and worthwhile utterances found in the English language.

These will not be found in social studies, science, or mathematics textbooks. Nor will they come from basal readers, or even from the language experience stories developed in the classroom. They will come from a longshoreman who said, "It is easier to love mankind than it is to love one's neighbor;" a poet speaking to his love saying, "I never think of you, but what some new virtue is born in me"; a recluse who suggested, "If a man does not keep pace with his companions, perhaps it is because he hears a different drummer."

Some examples will come from children, many of whom have insights that startle their teachers. The book that contained so many mundane responses from children relative to "What is Reading?" also contained several definitions of reading that have rarely been equaled by adults or even committees of adults. One child wrote:

> "Reading is being in the story itself and you are flying if they are flying. That's what I think!"

Another said, "Reading is a language that the eyes hear."

One student, whose behavior speaks well for his school experiences, launched into poetry:

> Reading is a baffeling case
> Reading is a swift chase
> Reading is fun!
>
> In reading you can jump the gun
> Reading is quite fun,
> Reading brings in the sun.
>
> Reading is all these things
> You can get anything
> from bounce to pings
> Reading is great!

These responses represent a creative use of language. They indicate a high degree of interaction between these children as readers and the materials which they have read. It is highly unlikely that the school will ever completely dominate these readers. They have developed the ability to appreciate the beauty and power of language and they will never be satisfied with reading only the curricular materials of the school. Already they are marching to a different drummer. What we are interested in here is enlarging their number--providing experiences with language that result in avid reading.

The school year consists of approximately 180 days. At least once each day, students should be invited to work with smaller units of language which differ considerably from what they have to read in textbooks. We need not debate as to which samples of reading we will use since so many are available. However, every teacher should assemble his/her own private stock which is amended frequently as a result of his/her own reading. A few representative examples follow.

"One great use of words is to hide our thoughts."

"A journey of a thousand miles begins with a single step."

"Some men see things as they are and ask, 'Why?' I dream of things that never were, and ask, 'Why not?'"

"He who is afraid of a thing gives it power over him."

"Every man of learning eventually becomes his own teacher."

"Injustice anywhere is a threat to justice everywhere."

"Each snowflake in an avalanche plead not guilty."

"A king cannot have a friend, a peasant can."

"Liberty will not perish as long as there is one voice that will lend itself to the cause of freedom."

"As face answerth face in water, so the heart of man speaketh to man."

Thorough analysis of the most incisive paragraph available on a given issue can produce as much understanding as a forced march through an entire chapter related to the topic. History is better understood from a study of the language which great men used at crucial moments in history than from reading voluminous memoirs written later. Little real understanding of the significance of the American Revolution is conveyed by most history texts as these allude to the Boston Tea Party, the Battle of Lexington, Paul Revere's Ride, or Washington Crossing the Delaware. Students deserve to be introduced to the words of Thomas Paine, the revolutionary, who spoke to the American colonists not in terms of "taxation without representation," but in terms of a dream of freedom and justice.

Every spot of the old world
is overrun with oppression.
Freedom has been hunted round the globe
Asia and Africa have long expelled her.
Europe regards her like a stranger,
and England hath given her warning
to depart.
O! receive the fugitive,
and prepare in time

an asylum
for mankind.

Will students see a relationship between a nation "overrun with oppression"--the need for "an asylum for mankind" and words from Lincoln's Second Inaugural Address?

On the occasion
corresponding to this four years ago
all thoughts were anxiously directed
to an impending civil war.
All dreaded it,
all sought to avert it.
While the inaugural address
was being delivered from this place,
devoted altogether to saving the Union without war,
insurgent agents were in the city
seeking to destroy it
without war ...
both parties deprecated war,
but one of them
would make war
rather than let the nation survive
and the other would accept war
rather than let it perish,
and the war came ...

Working With Roots

Teaching the meanings of root words from Latin, Greek, etc., is an excellent method of expanding concepts. This can never be accomplished by handing out 2 or 3 pages of common roots and asking students to memorize this material.

We stumbled on a backdoor approach to learning roots and using such a list. College students were given a lot of Greek and Latin roots and asked to coin new words by combining roots or a root and another word. That is, they were to make up words not in the English language, but whose meanings could be deciphered when one knew the meanings of the roots involved. It was amazing to see the energy with which students approached this game. Practically every student became involved, and much was learned about the meanings of root words from this simple exercise. Here are some of the words the students coined:

Psychesoother (psyche = mind) (soother = one who soothes) - a psychiatrist
Portemortis (porte = to carry) (mortis = dead) - a pallbearer
Solohomo (solo = alone) (homo = man) - a lone man, a bachelor
Psychefrater (psyche = mind, soul) (frater = brother) - soulbrother
Pseudovision (pseudo = false) (vision = to see) - a mirage
Thermoderm (thermo = heat) (derm = skin) - heated skin or a sunburn
Pseudodents (pseudo = false) (dent = dentures, teeth) - false teeth

There are hundreds of interesting ways to tie reading to language development. In conclusion, only a few highly motivating approaches can be mentioned--without illustration: Ten-to-a-hundred (different meanings for the same word); analogies (have your class come up with ten to thirty different "types" such as origin, synonyms, plurals, process, degree, characteristic, arithmetical, opposites, etc.); matching proverbs; "Build a page" from a kernel sentence; play with newly coined words or detecting malapropisms. Once a technique is introduced, let the students build other exercises. By all means let them work in pairs or teams. Once the language starts to flow do not interrupt it to get back to the curriculum.

REFERENCES

1. Daniels, H. Perk. Children's answers to: What is reading. New York: Vantage Press, Inc., 1969.

GROUPING FOR READING INSTRUCTION

EDWARD FRY
DIRECTOR, READING CENTER
RUTGERS UNIVERSITY

It might be well and good to know about teaching phonics, increasing vocabulary, or using basal readers; but every classroom teacher is faced with another very real problem, "How do I organize my class?" Do you try to teach all 30 children at once or do you try to teach one child at a time? How did the children get into the class in the first place? Are they children of like age, or like ability, or like achievement?

Research is not very conclusive about which type of grouping is "best" but this does not mean that schools aren't continually trying out new grouping arrangements. One grouping might be favored over another because of the teacher's personality or "style," because of the characteristics of the pupils, or because of a variety of other factors such as the school or community values, school board wishes, or even popular trends. Changing from one grouping to another sometimes adds stimulation or new interest in the education process in general and reading lessons in particular. Since many of the elementary grouping plans so specifically revolve around reading abilities or reading instruction methods, it is quite appropriate that they be discussed here.

Most schools have a system of self-contained graded classrooms containing one teacher and 25 to 35 children. The children progress one year or grade at a time. Acceleration (skipping) or retention (failure) is rare; hence, the teacher tends to get children that are similar in one respect--age. This is sometimes called heterogeneous grouping because the students are dissimilar on most educational variables such as I.Q. or reading ability. Placement of students in classes on the basis of age has been called the birthday method of promotion. A more technical term is chronological age grade placement or CAGP. Schools sometimes call this random grouping because other than age, there is no plan or policy behind it. Often, however, it is not truly random since some subconscious or accidental selection factors are involved.

Schools which have more than one class per grade level might use tracking or homogeneous grouping based on ability. Bright students or high achievers (which, usually but not always, tend to be the same students) are placed together in one room, with separate placement of other students. Larger schools might have three or four tracks or ability level groupings. One of the benefits of this type of grouping is that it tends to minimize the spread of abilities within groups. However, the grouping is never too exact since tests are inaccurate and children progress at different rates. It would not be unusual for a teacher of a fast third grade group to discover that some students were reading on third grade level, while another had eighth grade reading ability. The same inexactitude and increased spread will show up in a slow group.

While there are advantages for both the pupils and the teacher in having a class that is more alike and can move at a similar pace, one of the drawbacks is that children don't like to be identified as belonging to the slow group (no matter what you call it, they find out). Parents sometimes object when their children are placed in a slow group and are known to make vociferous complaints. Another problem in using tracking with self-contained classrooms is that when students are selected on the basis of reading ability, there may be a side divergence of ability in mathematics or other skills. Because of this, some schools that have self-contained patterns avoid the problems of tracking and settle for the problems of random selection. Some schools use heterogeneous grouping in primary grades and homogeneous grouping in intermediate grades. Research is inconclusive as to which method of grouping gives better reading results.

Cluster grouping is a modification of homogeneous grouping for assigning children to classrooms (or at times even reading groups). Its aim is to cut down the range of differences but still not have some of the disadvantages of complete homogeneous grouping. You might say that it is halfway between heterogeneous and homogeneous grouping. In a large school, students in a given grade might be divided into six different ability groups with group six being the best readers. The first teacher might get students in ability groups 1 through 4; the second teacher might get children in groups 2 through 5; and the third teacher might get children in groups 3 through 6. Thus, each classroom includes some pupils of greater ability and some of lesser ability, but none includes the full range.

Within a classroom, the traditional method of grouping is to have three reading groups. Two groups don't seem to provide for the spread of abilities and might be a little large to work with. With four groups, there are sometimes organizational problems as well as more difficulty for most teachers in preparation. If you are using a basal reader series, the teacher's manual will often give you instructions on how to group your children and will often provide progress tests on which you can make your provisional grouping. I say "provisional" because any grouping should be flixible with a more or less continual shifting of individual students from one group to another depending on their rate of progress and need for review.

In the traditional class, most direct reading instruction takes place within the groups. The children read aloud and silently out of their books with guidance by the teacher and are assigned workbook exercises which are usually discussed, or stem out of, a teacher presentation of some new or retaught skill.

Some teachers regularly form special purpose groups or special skills groups for one lesson or a series of lessons which cut across the regular reading groups. Perhaps a teacher will identify a group of students that need more help in short vowels, for whom special lessons may be designed using charts, audiovisual equipment, supplementary workbook pages, or teacher-made seatwork

exercises or games.

Another type of grouping that has been tried successfully in some schools is the staggered attendance plan in which half the class, for example, the better readers, comes to school 45 minutes early and leaves school 45 minutes early, while the other half of the class comes to school 45 minutes later in the morning but stays 45 minutes later. This gives the teacher a smaller group to work with during reading lessons, with more time for individual attention.

PRACTICAL SUGGESTIONS FOR UPGRADING A SCHOOL'S READING PROGRAM

RICHARD WALTER
KEAN COLLEGE OF NEW JERSEY

Recently I was asked why many children don't read as a recreational pastime. Perhaps one of the reasons is that we don't make reading attractive enough. True, we teach reading, but do we do it in such a way as to make it stand out in comparison to other areas of the curriculum? Do kids look forward to the reading period because it holds some special enjoyment for them? I think not. We are simply not getting students' attention.

Having advanced this premise, I'd like to discuss some possible reasons why we haven't gotten kids' attention and some suggestions for remedying this problem. The subjects which will be discussed are: problems caused by dull books and uninteresting assignments, and suggestions for activities that will get and hold kids' attention. I'll also consider some techniques for building interest, a reward system to maintain interest, and some motivational approaches that can result in a total school commitment to reading.

First, let's consider dull books and assignments. What do we do during the reading period that turns kids off? I would like to suggest that the reading material we give children is the number one cause of their boredom. Many basals are bad; the complaints voiced against them are practically chichés. The insipid stories of blonde-haired, red-cheeked children visiting atypical grandparents, the illustrations of black faces with caucasian features, and the stilted and artificial language used are but a few examples. Such material will never get the attention of our pupils for it is completely divorced from the real, after-school world of children. Fairy tales and saccharine vignettes of life are no substitute for reality, and reality is what turns kids on. We can no longer afford to offer them less! If reading is to be interesting in school, it must include those subjects which are interesting after school.

It's true that the new basals are better. Many of the previously mentioned objections have been removed, and many teachers are fortunate enough to have the new editions to use. Those who don't have new programs must substitute or supplement with the text books of reality--newspapers, magazines, and paper-backed books.

Nothing could be closer to reality than the current events found in any newspaper. Many small town newspapers have a readability level of from fourth to sixth grade. There is a plethora of materials available on how to use the newspaper during the reading period, and so this topic will not be pursued here except to say that children will often find a newspaper to read in homes

that are void of books and magazines. Magazines which cater to pupil interests are an invaluable aid in motivating reluctant readers, and a magazine can be found for every interest. What child would not be interested in reading a magazine which contains page after page of interesting information about his personal hobby?

Finally, paper-backed books are successful for a variety of reasons. First, to many children, the hard-backed book is a symbol of frustration and failure. Recall the eagerness with which children receive the new reader in September. They are instructed to write THEIR name in THEIR BOOKS in ink so no one can take it from them. These books, they are told, will help them to become better readers. By June, the pupils have been fined for marking in the SCHOOL'S book ("It's only yours to use, Johnny!") and he sullenly returns the book, glad to be freed from this hard, heavy volume which frustrated him for over nine months.

Library books are not the answer, for this type of child will rarely check out a hard-backed library volume. It, too, is reminiscent of failure. It, too, holds the threat of fines for borrowers who are tardy in returning books, or who dirty them. Library books must be protected from younger sibling, and youthful activities. Also, frequently a pupil isn't able to get more than two library books without a note from his homeroom teacher. No, hard-backed books are not meant to be the companions of children.

As I once stood talking to a reading teacher in a school hallway, she nodded in the direction of a youngster rambling down the corridor. "That," she said, "is the dearest sight in the world." I was puzzled, having seen nothing which would have evoked such a statement. And then I saw it! Protruding from a rear pocket of the lad's jeans was a crumpled, dog-eared paperbacked book, and I understood perfectly. That book was the companion of that child. They traveled together; they were inseparable, and from the appearance of that volume, they had been together for quite awhile. Could that have happened with a hardback? I doubt it very much.

Paperbacks are also successful because of children's need to possess things that they enjoy. Inner-city children, in particular, have a strong sense of possession. They have a commitment to read those paperbacks that they have selected. There is pride of ownership which comes from free choice--a feeling which is not to be found in using hard-backed school books.

Why not start paperbacked book clubs in your school if they don't already exist? Have paperbacked book fairs. Many companies will select appropriate books, do all the setting up and offer the school a percent of the profits. Let's get kids to select and read books of their own choice. In the meantime, ask your school system for outdated books which aren't being used. Select the best of the lot, rip the hard back covers off of them, and substitute covers made of colorful contact paper. Many books can be disassembled into short stories and recovered. These can

be tossed into a new plastic garbage can and made available for kids to read and stuff into their back pockets. If your school system has no old books, start a neighborhood book drive. A dittoed message in each mailbox will let neighborhood residents know when you're coming. After pupils have collected all the books, appropriate volumes can be selected and the covers removed as in the previously mentioned procedure.

Once children are reading, another problem occurs. Teachers like to have a way of checking on children's reading. The usual method is to require a book report. Thus, perhaps unknowingly, teachers have levied a penalty against reading. For the more books that are read, the more book reports that have to be done. With these consequences, a child would have to be foolish to read at all! Furthermore, the written book report forces a child to put his intuitive feelings into written form. For many children, the task of expressing intuitive feelings orally is difficult enough; the task of putting these feelings into writing is overshelming. Granted, it may be desirable to have some method of checking a pupil's understanding of a book. But the methods employed should make children want to read, not create barriers to reading. The following suggestions for reporting on books are certainly more enjoyable for children.

Children enjoy making dioramas illustrating the books they have read. The diorama can depict the part of the book that they enjoy the most. Pupils with an artistic flair can construct mobiles and explain to the class their reasons for selecting the components they did. Pupils who are verbally oriented may elect to act out the story in the style of a radio broadcast. Pupils who enjoy writing may wish to compose an article about the book imitating a newspaper reporter's style of writing. Flannel board presentations are an enjoyable alternative for shy pupils who enjoy the comfort of props while reporting. Puppet shows may also be performed using the theme of a book the pupil has read.

Bilingual children may enjoy converting a portion of the book's dialogue into their own dialect and presenting it to the class. Collages are also an interesting substitute for written book reports. Perhaps one of the most enjoyable activities is the shadow-play book report. All that is needed is a large bedsheet and a spotlight. The pupils act out parts of the book while the audience watches on the other side of the sheet. Actors stand between the light and the sheet equipped with cardboard cutouts which can transform them into King Arthur on horseback, Cyrano, and a host of other characters. With this method, as well as with many of the others presented, children have to work together. This will get kids talking about books, looking for meaning in stories, and discussing characters. In the case of the shadow-plays assisting students may have read the book; other students may want to read the book as a result of having acted it out. Let's get kids thinking and talking about books!

Further ideas may include a card catalog file for the room made of file cards and a shoe box. Pupils can add an annotated

card after reading a book. How about an "I Recommend" bulletin board on which pupils put signed file cards with the name of interesting books they've read along with short descriptions. Pupils may wish to add the names of several friends who they feel would be interested in reading the book. Single page stories can be written, glued to card stock and cut into jigsaw puzzle-like parts. Stored in envelopes, these can be assembled and read during enrichment periods.

Hopefully, at this point we have pupils reading non-threatening books and reporting on them in enjoyable ways. I would now like to propose some methods of sustaining the results we have worked so hard to achieve. It is a fact that the most difficult pupils to motivate are the ones that need it the most--the remedial readers. I would like to propose an extrinsic reward system which will motivate these pupils, as well as other children. Many teachers wince at the thought of extrinsically rewarding children, stating that children should achieve for their own self-satisfaction. This is not only contrary to our country's life style, it is somewhat naive. Furthermore, much of the research done on extrinsic motivation is supportive. Extrinsic reward is a very important part of everyone's out-of-school life. Thus, by denying extrinsic reward, we are creating, again, a less than real situation. For example, preschoolers will be visited by Santa if they behave all year, they will get desert for eating their vegetables, and be allowed to go on shopping trips if they behave appropriately in the stores. At home, school age children are granted additional time to watch television if homework is finished. They may receive spending money for doing chores and get a dollar for each A on their report cards. But they receive no such rewards at school. There is no logical reason for denying underachieving children (who are already denied success) some tangible reward for accomplishment. A child who is rewarded for accomplishment has a willingness to try and will travel a one-way road to success. A lack of reward leads to self-doubt, a lack of success, and the eventual failure syndrome with which we are so familiar.

Extrinsic reward can take many forms in reading, but initially, reward should be immediate and tangible. Food, certificates, badges, and stars will delight youngsters. With older children, rewards can be delayed for several days or a week. The use of credits or tokens redeemable on Friday will make the job of rewarding a bit easier for the teacher. At the end of the week tokens can be redeemed for cakes, prizes, or privileges. Eventually, rewards which need to be replenished can be replaced with reusable rewards such as charts and graphs to indicate success. Each success would be added cumulatively to the prior one to show continual growth. A large, wide-mouthed, half-gallon jar can be turned into a Reward Jar filled with fortune cookie-like slips of paper granting privileges and rewards. The child is rewarded by allowing him to withdraw a slip and read it to the class. Permission to be line leader, get an extra drink at the water fountain, have an extra five minutes of recess are exciting rewards for kids.

Competition is a healthy way of sparking interest. Rooms can compete with each other in reading-oriented contests. Reading trees can be built of chicken wire and stuffed with tissue for bark. As a pupil finishes a book, a paper leaf can be added to the tree complete with book title and the reader's name. Different colored leaves can indicate biographies, fiction, and other types of books. At the end of the semester, all the Reading Trees can be displayed at an assembly with prizes awarded to the tree with the most leaves. Many schools receive lunch room milk in small plastic bottles. These can be strung on a rope, painted and decorated to form a bookworm. As each child finishes a book, he can add a section to the worm complete with his name and book title. In the event such containers are not available, round oatmeal or salt containers can be substituted. Rooms can then compete for the longest bookworm.

The previous suggestions will be much more effective if there is a total school commitment to reading. The following suggestions involve the principal and help to project the image of a school that has made such a commitment to reading.

In the lower grades, membership in reading clubs can be an excellent motivator. Clubs can be established to provide achievement goals. Thus, primary pupils can be offered membership in the "Five Minute Sight Word Club." Membership is granted to those pupils who can successfully read all 200 Dolch Sight Words in five minutes. Celluloid lapel badges, properly enscribed and worn daily by club members will help to motivate others to try out for membership. Members in the Five Minute Sight Word Club can be offered membership in the Three Minute Club. Regardless of the club name, the names of the members should be enscribed on an attractive plaque or scroll at an assembly as the principal pins on the lapel badge. Granted, this will take up some school time, but not as much time as remedial attempts to accomplish the same skill development.

Pupils who have read interesting books can apply to join the PA Book Club. These students can be selected by their teacher to present a short book report over the Public Address system following the principal's announcements. Readers may also work toward joining the "50 Book Club." Membership in this club can be conferred each semester at an assembly to those pupils who have successfully read, and reported on, 50 books. Appropriate certificates will make this an event to aspire to and remember.

Older pupils whose skills are increasing can join the Readers Club, an organization of pupils who volunteer to read to lower grade children for their own practice and to enrich the lives of younger children. The possibilities are many and only a little imagination is needed to generate more ideas.

In conclusion, the implementation of these ideas should result in an increase of interest in reading. By obtaining a total commitment toward reading in your school, everyone will benefit. The investment is minimal and the rewards most satisfying.

"HANDS OFF!"--A MEANINGFUL LANGUAGE EXPERIENCE

JOSEPH ZELNICK
LIVINGSTON COLLEGE

At first, Arlene Cummins was really elated. This was her first teaching job. The fifth grade teacher in this urban school had to take an emergency leave in February. Arlene was chosen for the position.

Now, four weeks later, Ms. Cummins began to have doubts about her "good luck." This class was different from the one she had as a practice teacher. That group was highly motivated. The pupils were reading on grade level. They could work independently.

By contrast, this group was almost the complete opposite. Most of the pupils were two or more years below grade level in reading. The criterion tests administered in September showed poor mastery in all areas; the pupils had short attention spans. They did not hide their dislike for reading, or writing for that matter. There was a scarcity of materials--no kits of any kind with which to individualize instruction, not enough basal readers (copyright 1960)--just a few old, beaten workbooks. Ms. Cummins eargerly awaited snow days and in-service days (the latter because they were half-days for the pupils).

Then, one night, while lying restlessly in bed and bemoaning her fate, an idea came to Ms. Cummins. She remembered a discussion about language experience in her undergraduate methodology class. The language experience approach was based on the premise that reading is really talk just written down. It utilized children's oral language as well as their interests and experiences. But, as Ms. Cummins remembered, it was used mainly by primary teachers. Could it work with seemingly sophisticated and uninterested fifth graders? Nothing else had really worked up to this point. Why not give it a try?

Ms. Cummins contacted this writer for suggestions. The following modus operandi evolved: She read aloud to the group "One Alaska Night," an adventure selection from a Reader's Digest Skill Builder. For the first time in weeks, the students sat quietly and seemed interested. Just before the climax came, she stopped.

"Who knows how the story will end?" Excitement erupted as a dozen hands went up.

"I have an ending."

"Mine is better."

"Listen to this one."

Each suggestion reflected imagination and creativity. Some were morbid enough to remind Ms. Cummins of violence on TV shows.

At this point, she suggested that the pupils reconstruct the story in their own words along with an original ending.

"Let's write it together," she said.

"We don't like to write."

"We can't spell."

"O.K.," Ms. Cummins replied. "You tell me what you want to say, and I will write."

Ms. Cummins wrote the following story on the chalkboard as the pupils dictated:

She opened the door and saw a man with no hands.
She tried to scream, but she couldn't because she was frightened.
She ran away, but he caught her and got her.
She tripped on a log.
The man took her back to the cabin.
He said to her, "I want your hands."
He chopped off her hands and took her blood.
And she died.
Her husband came to look for her.
He found her dead in the woods.

Now, a few interesting things began to happen. Carlos, who usually complained about doing anything, offered to read the story aloud. Guy wanted to hear the real ending from the book. Curtiss was copying the story from the chalkboard. Regina and Gilberto wanted to draw pictures of the story.

Ms. Cummins brought the group together.

"Let's all copy the story from the board," she suggested.

"Why?"

"For two reasons. This will be the first story in a book that each of you will make. Also, I would like you to put your own title on the story. Then we will compare titles." (A quick lesson in main idea.)

Except for an occasional remark or question, silence prevailed once more as the pupils wrote. When they finished, titles were compared, and a vote was taken on the best one. They decided on "Hands Off?"

Ms. Cummins now felt that she had now had a meaningful base for skill development and follow-up activities. The experience story was typed with enough copies for everyone in the group. The

pupils were impressed and pleased to see their work in "print."

The following activities emerged:

Comprehension. A cloze exercise was constructed in which every fifth word was deleted and replaced with a blank space. The students filled in the blanks. Even though the story was familiar to them, there were differences in inserted words. A lively discussion about these differences ensued.

Word Recognition. "Find a word in the story which means the same as,

yell (scream)
scared (frightened)
cut (chopped)
forest (woods)"

Phonics. The criterion tests indicated, among other things, that the pupils needed practice with blends and digraphs. The following exercise evolved.

"Find words from the story that start with the same sounds as these words:

friend (frightened)
truck (tripped)
church (chopped)"

The pupils then supplied words of their own which had the same beginning sounds.

Word Structure. After a brief discussion on the meaning of present and past tenses, the pupils listed all of the words in the story which indicated past actions. These words were then compared for similarities and differences endings as well as sounds.

Follow-Up Activities. The pupils were interested enough in the experience to carry on in different ways. Emmett offered to read the original story to a fourth grade class. Regina and Gilberto continued with their drawings. Bobby began to browse through the Reader's Digest book for other selections. Ms. Cummins did the same thing, now that she found a way to motivate her pupils to read and write.

ARE YOU "GAME"?--GAMES IN THE CLASSROOM

CYNTHIA VAN NORDEN PECK
SUMMIT PUBLIC SCHOOLS
AND
RUTGERS UNIVERSITY

It has finally happened. Television is teaching, not merely hypnotizing our children! How can you, a classroom teacher, possibly hope to compete with the learning jingles and alphabet commercials on Sesame Street and Electric Company? Don't give up hope. You CAN beat the system! What it all boils down to is this: how innovative are you in your own classroom? What do you do to attract and hold the attention of the many students in your class--the blase, the indifferent, the "slow learner," the underachiever, the behavior problem, and yes, even the normal boy or girl who is often the neglected child in today's classrooms? The fact is that the odds for success are in your favor if you only apply what you know about children outside of school to the learning situation inside school. This can bring about dramatic changes in the attitudes of your youngsters, and even, perhaps, change your own toward them.

Have you ever watched a group of children playing a game? Whether on the playground with many on a team, or indoors around a deck of cards or a game board, there seems to be universal appeal in games. Children and adults of all ages become caught up in the intricacies and intrigue of varied rules and penalties, and in winning or losing.

Commercial games for home use have been on the market for years, but commercially prepared games labled for "educational" use are just coming into their own. Available in elaborate kits or single units, these devices teach and reinforce everything from consonants and political theory to math facts.

"But," you cry, "when do I have time to teach games? I hardly have hours enough in the day to teach the subject matter for which I'm responsible!" Yes, true. Games have rules and rules must be understood in order to make the game worthwhile. What is the solution? Part of the answer lies in the atmosphere we as teachers construct for our children. When learning is fun and nonthreatening, it naturally takes place and fear of failure diminishes. When teacher talk is lessened and pupil talk is valued and encouraged, a rich learning atmosphere develops. Children and teachers who feel free enough to benefit from their mistakes and proceed through the maze of trial and error which is the learning process have unlimited possibilities and excitement ahead of them!

Perhaps the best way to recognize the intrinsic value in games as reinforcers and teaching devices is to introduce them very slowly into the routine already established in your own classroom. A math game, offered as a free choice in a learning center, might require no actual teacher-time at all if clear, concise rules for

play accompany it on a carefully printed card. Handled in this way, the game serves more than one objective--reinforcement of a math concept and the development of sequence and organization in the reading act! As the children become proficient in one game, another can be introduced to teach or reinforce concepts in another subject area.

While commercial games serve a valuable purpose, often teacher-made games are more effective, as they can be made to focus on a single objective of your own choosing. As you become involved in the theory of games, you will think of endless possibilities to illustrate a learning concept. A few rules to keep in mind, however, may be of help to you.

1. Develop your game around a popular theme appropriate to the grade level, i.e., Disney World, Peanuts Characters, Baseball World Series, Jungle Animals, etc.

2. Don't be arbitrary about rules. Let the players establish their own table rules according to the way they see the game.

3. You don't have to be an artist to make a good game, but be artistic--that is, use bright, bold colors, and neat lettering where necessary. Children are attracted to the attractive!

4. If you value your efforts at all, buy some clear plastic covering with adhesive on one side and cover your cards or game board. This greatly decreases wear and tear and adds life to your materials.

5. Don't overwhelm your students with too many games at once. Make sure that each game you introduce is thoroughly understood and utilized by all before a new one appears. After you have made several available, they will develop favorites, and this is as it should be. However, it is better to have a few well-understood and enjoyed games in your room than many whose full value and potential has never been significantly developed.

Following are several ideas that I have gleaned from colleagues, students, and books over the years, as well as some I have made myself. None are fixed permanently in their present form--all may be adapted to another subject or a different grade level once the basic operation of the game is understood.

I. Comic Strip Rummy--a card game for 2 to 4 players, grades 1 to 6.

1. Cut out 10 four-frame comic strips from the daily newspaper and then cut them apart. Peanuts, B.C., Dagwood, and Pogo, which is especially good for older students, are good ones to start with.

2. Cut 20 4" x 3" solid colored index cards in half (2" x 3"). Mount one frame of the four-frame comic strip on each card near the top right so it will be easy to see when held in a hand with other cards. When you are done, you will have 40 small

playing cards.

3. Number the four cards belonging to the first strip #1. Do the same with the other nine sets, numbering them from 2 to 10. You will have four number twos, threes, etc.

The Play

1. One player deals out four cards to each player. The remainder form a draw pile in the center with the top card face up next to the pile.

2. Played like Rummy, the player to the left of the dealer either draws a new card from the top of the deck or picks up the card from the discard pile. His turn is over when he discards.

3. The object of the game is to accumulate four cards which form a single comic strip and lay them down in the correct sequence, discarding the draw card. The first one to fulfill both these stipulations is the winner.

Note. I have numbered the packs as it makes play easier for young children. However, you may wish to make the gathering of the complete four-frame comic strip totally dependent on identifying the characters in the pictures as well as the story line featured. It is up to you to try out and decide on the method best suited to your class.

II. Syllable Race--for 2 to 4 players, any grade.

1. Make four separate wiggle-worm playing boards, about 4 inches wide and 24 inches long. You will need to show the segments on the worm, as each segment represents a move. Make at least 20 segments on each worm, along with a comical face. A funny hat with flowers or a bow tie will add to the game's attraction.

2. Make a deck of playing cards, at least 40, with one, two, three, or four syllable words on them. Depending on your objective, the words could be sight words to be learned or phonetic words to be sounded out.

3. You will need a marker for each player. I buy inexpensive molded plastic dinosaurs and racing cars to be used as playing pieces, but a coin or a square of colored paper will do just as well.

The Play

1. Each child choses a card from the face-down deck. The one with the card having the most syllables in the word on it goes first. He draws a card from the top of the deck and pronounces it, then tells how many syllables he hears in the word. If the other players agree with his answer, he advances one segment for each

syllable in the word he identified.

2. Play proceeds from child to child, as each draws a card and identifies the number of syllables he hears in his word, and advances on his own playing board accordingly. The first child to land on the head of his own worm wins the game. A word with the exact number of syllables necessary to land on the head must be drawn in order to go out.

3. In constructing the game, you may add penalty cards to the deck, such as "move backward one space for each syllable on the next word you draw," or "lose your next turn." This adds to the appeal of a game.

III. Synonym Rummy--a card game for 2 to 4 intermediate level students.

1. Once you have made this game for your students, they may wish to create their own game decks. They will need to be introduced to a thesaurus or be reasonably proficient in dictionary skills.

2. Make 15 sets of three cards per set, using solid colored unlined file cards (3 x 6) cut in half (2 x 3). Each set of three cards will contain three synonyms, one per card, and the same sentence that makes sense for all three words.

The Play

1. Deal out six cards to each player. Put the remaining cards in the middle of the table and turn the top one face up in the discard pile.

2. The first player either draws from the deck or from the discard pile in an effort to secure three synonums, then discards a card.

3. The object of the game is to hold and lay down two sets of three synonums each, and then discard the remaining card. The first player who succeeds is the winner.

Note. This game may be adapted to any grade by using easy or more difficult synonyms and sentences. A variation might be to use a root word with three different structural endings and three different, yet similar, endings.

IV. The Problem-Solving Game--an affective values game for the intermediate grades; 2 to 4 players.

1. You will need to make a playing board consisting of a path divided into 30-40 spaces with a starting and ending point. Your theme will suggest the kind of path. For example, if you use

"Snoopy" and his gang as your theme, you might have his doghouse at one end of the game board and a big bone at the other, indicating the goal sought. In addition, you will need to make a deck of cards containing values problems appropriate to the grade you are teaching and the maturity of your class. Problems might suggest themselves from interactions in your own room or from problems common to the age level. For example, a card might read "What do you consider to be a reasonable responsibility for you to have around your home?" or "What would you do if your best friend asked you for the answer on an arithmetic test?" Others might include the justification of white lies, or following one's own dictates rather than following the crowd. The idea is to force a value judgment from the player whose turn it is.

The Play

1. The first player draws a card from the values deck, reads it, considers the problem, and solves it with an answer.

2. Each of the other players considers the answer given, and reveals one of his three number cards, and reveals one of his three number cards, which contain a zero, a one, or a two. A low number indicates that the player feels that the resolution to the first player's problem is a poor one; a high number indicates that the opposite is true.

3. The first player advances one space for each number totalled on the other players cards. For example, if there are three other players who give the solution to the first players problem a 1, a 1, and a 2 respectively, then the first player will advance 4 spaces. He then relinquishes his turn to the player on his left.

4. The game continues until someone reaches the goal indicated at the end of the playing path.

SYNONYM RUMMY

The noise from the fans in the grandstand was loud	The uproar from the fans in the grandstand was loud.

The racket from the fans in the grandstand was loud.

SAMPLE SET OF SYNONYM CARDS FOR RUMMY-TYPE GAME.

SYLLABLE RACE

Make one worm for each player or make four on a single game board

deck of playing cards containing 1-4 syllable words; example:

in-vi-ta-tion	be-tween

COMPUTER-ASSISTED INSTRUCTION AND LEARNING BASIC SKILLS

MARTIN KLING
RUTGERS UNIVERSITY

INTRODUCTION

Background

The number of applications of Computer-Assisted Instruction (CAI) has been steadily increasing since the first commercial computer was installed in the Census Bureau in 1951. Atkinson (1968) cites at least three factors to account for this increasing growth.

1. The interest and extension of programmed instruction from a Skinnerian point of view toward learning;

2. The increased critical mass of available computers, especially time sharing;

3. Government funding.

Two recent surveys indicate the extent of usage of CAI. Lekan (1970) lists at least 31 programs in Reading and 215 programs in Math being developed from the preschool through the college and universities, public school settings, and the private sector.

The American Institutes of Research, in conjunction with the National Science Foundation as reported by Darby et al. (1972) conducted a study of all 23,500 secondary schools in the United States as to their usage of computer technology. On the basis of a 54% rate of return, it appears that the fifth most popular use of the computer is CAI. The actual number of secondary schools using CAI was 134.

Brief Review of the Literature

According to Jamison et al. (1974) CAI projects were probably nonexistent before 1960. Until 1970 or 1971 most projects were university based. One of the more well funded and researched CAI programs in Reading and Mathematics began at Stanford University in 1964 under a grant from the U.S. Office of Education. Several basic findings emerged, as reviewed by Atkinson (1968), Suppes and Morningstar (1972), and Jamison et al. (1974).

1. Boys who typically do poorly in initial reading in traditional programs do as well as girls;

2. CAI reading and math takes less time than instruction in the classroom;

3. On standardized and nonstandardized tests, students in CAI reading and math programs in the primary grades achieve statistically better performance than their counterparts in a classroom situation;

4. The amount of achievement gained is positively related to the number of CAI sessions a student received;

5. CAI can be used to improve achievement scores of disadvantaged students;

6. Positive attitudes were manifested by disadvantaged students on home terminals.

THEORETICAL FRAMEWORK

Learner Parameters

The fundamental theoretical framework for CAI is the acceptance of a firmly established concept in psychology of the existence of inter and intra individual differences in individual rates of learning. Suppes (1964) feels so strongly about this that he believes that it is ". . . the most important principle of learning as yet unaccepted, in the day-to-day practice of subject matter teaching in the classroom."

Suppes cites a study of kindergarten youngsters who were trained to a criteria of 14 single words, built upon from 14 letters with a criterion of 28 successful responses. After this criterion was satisfied, the youngsters were given a list of 14 two-word phrases, then three-word phrases, then four-word phrases, then five-word phrases, all developed from the initial vocabulary of 14 words. Altogether, 38 kindergarten youngsters completed the experiment. The fastest child needed only 196 learning trials while the slowest child needed 2,506. The mean was 967 with a standard deviation of over 400. Four other key parameters of learning are pointed out by Suppes:

1. Immediate reinforcement and overt correction procedures;

2. The specific nature of transfer;

3. Optimal block size in learning;

4. Response latency or reaction time as a criterion of learning.

The second most formidable parameter that enhances learning is attention. Indeed, this is the most common complaint of teachers at all levels and is often confused with motivation either as a cause or effect. B. Atkinson and Seunath (1973) pointed out that there is a general consensus in the literature that attentional deficits and attentional difficulties (distractability, short attention span) are most manifest with "minimal

brain damaged" youngsters and/or neurologically impaired learners.

Learner and Instructional Tasks

Glaser (1963) has identified ten learner/task areas:

1. Provision of curriculum opportunity;
2. Statements of curriculum intentions;
3. Curriculum placement decision;
4. Adjusting rate of instruction;
5. Provision for individual responding;
6. Provision for individual feedback;
7. Monitoring individual progress;
8. Performance standard for advancement;
9. Evaluation of performance;
10. Matching learners with next instruction.

1. Provision of curriculum opportunity refers to the likelihood for learning that is given for learners. The CAI programs are carefully designed so that instructional strategy directs the student's progress through the curriculum and because of its initial diagnostic placement affords the student an opportunity to engage in strands that are relevant to his initial performance.

2. Statements of curriculum intentions describe the outcomes of instruction and learning. Each of the basic subject areas has available behavioral objectives for each of the strands in a given subject area. The computer makes decisions which takes into account the student's performance, quickly adjusting to a student's level across all strands.

3. Curriculum placement decisions are the tasks that determine the point of entry into the particular subject area, grade level, and strand that the youngster is exposed to.

4. Adjusting rate of instruction regulates the rate at which material is made available to learners. The student has an opportunity to work within a given time frame to control the speed of presentation (up to a minute per frame) before going on to the next presentation.

5. Provision for individual responding concerns the frequency of response as well as the accuracy and the type of response. Each student on a working teletypewriter has an ongoing

record and summary of the responses made.

6. Provision for individual feedback includes the identification of initiators, the percentage of accurate responses, and the type of responses on a printout that the student can make available for himself, his teacher, and parents. For example, a maximum number of items that can be covered in 10 minutes can reach up to 130 responses.

7. Monitoring individual progress is on-line and immediate with records that can be preserved in the form of printouts for the individual student as well as for groups of students on daily, weekly, or any other time frame that is desired.

8. Performance standard for advancement is the level of achievement that must be obtained by the learners before going on within the strand or another strand.

9. Evaluation of performance is the interpretation of the performance of learners relative to performance of a class or other subgroup or the individual learner. The CAI affords continuous evaluation for any of these dimensions. It can be noted regularly what the grade equivalent is for the enrollment group for above or below average group as well as the youngsters on performance level.

10. Matching learners with next instruction is an on-going built-in aspect of CAI in that the performance is continually monitored with immediate feedback.

CAI and Learner Parameters

More specifically, CAI incorporates most of the basic learning and learned tasks outlined above. Table 1 summarizes the articulation between CAI and instructional dimensions.

PRACTICAL BASES

CAI provides an ideal vehicle for implementing the basic theoretical framework of Suppes and Glaser in that it explicitly monitors inter and intra individual differences in learning basic skills. It also provides an ongoing diagnostic analysis and placement of a youngster within a subject area, as well as indicating the strengths and weaknesses within that area. Furthermore, the response demands of CAI tend to rivet the attention of the learner and divert his energies to meaningful articulations.

TABLE 1

CLASSIFICATION AND RANGE OF VARIABLES FOR ASSESSING CAI AND INSTRUCTIONAL MATERIALS

Constructs and Variables	CAI	Instructional Materials
Objectives		
1. Selection of Objectives	Explicit	Explicit
2. Specification of Outcome Goals	Fixed	Fixed
3. Population Specific	Fixed	Fixed
Organization		
4. Structure of Subject Matter	Defined	Defined
5. Sequence	Differentiated Entry	Fixed
6. Scope		
6.1 Coverage	Flexible Coverage	Flexible Coverage
6.2 Range	Broad Range	Broad Range
7. Branching	Multiple Route	Multiple Route
8. Recycling	Multiple	Multiple
9. Selection of Materials		
9.1 Supplementary Materials	Many	Many
9.2 Selection of Materials	Explicit	Explicit
10. Learning Environment	Explicit	Explicit
Methodology		
10. Learning Environment	Closed	Open
11. Methodology	Structured	Eclectic
12. Time	Fixed	Flexible
13. Pacing	Fixed	Variable
14. Modes	Limited	Multiple
Evaluation		
15. Evaluation of Learning	Norm/Criterion-Referenced	Norm/Criterion-Referenced
16. Evaluation Approaches	Pupil-Centered	Teacher-Centered

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A CAI USER REPORTS

DORIS SELUB
FREEPORT PUBLIC SCHOOLS

Under ESAA funding starting in the 1973-74 school year, we implemented a CAI program in reading and math in our middle school. The value of this educational tool has been demonstrated in both increased achievement and in increased motivation. Students have been eager to come to the reading and math labs and to work consistently and well when there. Students voluntarily come to the labs for extra lessons during lunch periods, after school and even on Saturdays.

In addition to the highly motivational aspect of the computer program, computer-assisted instruction, (henceforth referred to as CAI), provides individualized prescriptive practice for each student. After the entry point has been established for the student, the computer provides a series of practices on the appropriate instructional level, taking him up at small incremental steps, while monitoring and recording each student's progress. If the student answers a question incorrectly, he is given a second try; if he does not get the correct response at that point, he is given the correct answer.

It does not end there, however, because the same or similar question will be presented again in his ensuing program until he achieves mastery. If the level proves to be too difficult, his instructional program automatically moves down a level until he is successful. After mastery, the instruction again moves upward in small steps. The very personalized program, starting with the computer's "Hello" greeting by name after the student types his identification, and going right through to the immediate tally of correct responses, ending with "Good-bye, John," provides the student with a "tailored-to-fit" program to meet his particular needs.

The computer assisted instructional method is one which provides a highly individualized program. Lessons as such do not exist in the computer memory but are prepared for each student individually on the basis of his/her achievement while he/she works at the terminal. Diagnosis of student strengths and weaknesses enhanced since the daily teacher report includes a profile of each student's position in each concept area.

The CAI reading program provides the remedial reader with individualized work in specific reading skills and consequently raises the student's reading level. The program familiarizes the student with commonly encountered word structures, vocabulary, and sentence constructions; provides practice in the literal and interpretive comprehension of written prose; and develops the student's work-study skills.

The reading program consists of reading practice items designed to sharpen the student's skills in five areas: word analysis,

vocabulary extension, comprehension of sentence structure, interpretation of written material, and development of study skills. It contains material for four years of work at grade levels 3, 4, 5, and 6 as well as supplementary remedial material that extends downward to grade level 2.5. The program is divided into two parts: Basic Sentences and Strands.

Basic Sentences begin at grade level 2.5 and end at grade level 3.5. All the items in this section are very short and easy. They represent the simplest type of practice problem that can be presented in a contemporary computer-assisted instructional system.

Strands

The strands structure extends from grade level 3.5 through the sixth grade. A strand is a sequence of related items. There is one strand for each of the five areas covered by the program. A list of strands follow, showing the subject area each covers.

Strand A Word Attack - analyzing words as units

Strand B Vocabulary - building a reading vocabulary

Strand C Literal Comprehension - understanding the literal meaning of sentences

Strand D Interpretive Comprehension - reading sentences for interpretation

Strand E Work-Study Skills - learning to use resources effectively

The strands structure allows each student to move at his own pace. The material a student receives from a strand is independent of his position in other strands and of the progress of other students.

The number of items allotted to each strand changes from grade year to grade year.

Progress Through the Program

Normal Motion

The student's movement through the program depends upon the number of correct responses he makes within a class. If he responds correctly to all items in a class, he moves to the next class. If he makes one error, he will also be moved to the next class; however, the missed item will be carried forward and presented again in the next class. If the student makes two errors, he remains in that class, randomly repeating the missed items until he makes either one or no incorrect responses. At this point, he

will move forward as described above.

If the student misses three or more items, he is moved back one class. An item that has been carried forward from a preceding class is not counted as one of the three or more items that cause the backward movement.

Errors	Movement
0	next class
1	next class, carrying missed item forward
2	no movement; missed items repeated in random order
3	back to preceding class

The same criteria for forward and backward motion apply to both the Basic Sentence section and the strands. In the strands portion of the program, however, the student's progress in each strand is independent of his movement in the other strands. If he does well in one strand, he will move forward in it even if he is performing poorly in the other strands.

Initial Placement Motion

Students enter the program at one of four grade levels: 3.0, 4.0, 5.0, or 6.0. The teacher indicates the entering grade level for individual students or for an entire class. A student's entering grade level does not have to be the same as his actual grade year.

If the student performs either very poorly or very well at his entering grade level, the program can adjust his grade level up or down in half-year steps. This rapid adjustment of grade level is called initial placement motion. It is in effect only during the student's first 10 sessions.

If the student answers only 50% or fewer of the items correctly during any of the first 10 sessions, the program moves him back a half year to the closest grade level of .0 or .5: for example, from an entering grade level of 4.0 to a new grade level of 3.5. If the student answers 95% or more of the items correctly, the program moves him forward a half year: for example, from grade level 4.0 to grade level 4.5.

At the end of the first 10 sessions, the members of a class that entered the program at grade level 4.0 may be spread between the upper and lower limits of the program. Students who need remedial work at the level of the most basic reading skills may have been dropped to grade level 3.0 or 2.5; students performing above a fifth-grade level may be working at grade level 5.0 or 5.5. The initial placement motion assures that each student works at the level appropriate to his ability.

CAI AND THE TEACHER OF THE FUTURE--YOU

CATHERINE M. ANELLI
LIVINGSTON COLLEGE

The general principles of any study you may learn by books at home; but the detail, the colour, the tone, the air, the life which makes it live in us, you must catch all these from those in whom it lives already.

John Henry Newman
from
"What is a University"

Viewpoints Towards CAI

Mention of computer-assisted instruction (CAI) arouses conflicting emotions among educators. Some charge that CAI is but another step towards a dehumanized society; others, awed by computers, consider CAI the product of a superhuman automation; still others simply fear that CAI may replace them in the classroom. CAI is unlikely to either increase or decrease the creeping depersonalization of modern society. Most of us have adjusted to the use of computers in other areas of our lives--for example, computer-managed credit accounts, and we do not particularly miss the personal attention of company bookkeepers. Awe is also inappropriate since the computer is a man-made product of far more limited complexity than the human brain. Dread, or perhaps apprehensiveness, is certainly understandable considering the capacity of computers to assume many instructional functions. This brings us to the central problem of this discussion. Can teachers be replaced by machines? Or do teachers perform certain functions that transcend automation?

Levels of CAI

These questions cannot be fruitfully investigated without some understanding of just what it is a computer is capable of doing in education. Atkinson (1968) defines three levels of computer-assisted instruction according to the complexity of the interface between student and the system. These levels are: drill and practice, tutorial, and dialogue. According to Atkinson and Wilson (1968) the least complex programs--drill and practice--are the most prevalent modes of CAI and are used mostly for supplementary instruction. Concepts should first be introduced to students in class and then CAI can be used to help students review and practice these skills on an individualized basis at typewriter terminals and/or cathode ray types. CAI drill and practice provide immediate feedback and correction. Students may also be branched to more difficult or easier material and teachers receive reports on students' performance.

Programs which assume the burden of instruction are called tutorial programs. Because tutorial programs are, or can be, designed to teach without the intervention of a human teacher, the hardware usually needs to be more extensive than that which is normally used in drill and practice programs. Student terminals may be equipped with film projectors, cathode ray tubes similar to small television sets, earphones, and a typewriter. Letters, numbers, and simple line drawings generated by the computer appear on the cathode ray tube (CRT). The computer can also quickly present graphic displays and complex illustrations on the film screen. Audio messages direct the student's attention to these illustrations and explain material presented on the CRT. Students respond by using the typewriter or a special light pen designed for use with the CRT. Tutorial programs may also involve the student in game-type situations. These game and simulation programs present students with real-life problems and permit them to experience the consequences of decisions.

Dialogue programs represent the most complex level of student-computer interaction. Theoretically, the student would be able to ask questions and make responses using natural language. The student would also be able to exercise almost unrestricted control over the sequence of materials. This is the ultimate in CAI and progress in the development of such programs has thus far been quite limited.

CAI Classroom Functions

Under ideal conditions, CAI can assume the following classroom functions:

1. remediate or advance skills through extensive branching capabilities;

2. teach new materials and provide helpful hints and additional information where needed;

3. present material at the student's own level and thus avoid a frustrating mismatch of material and student;

4. insure that children pay attention and are actively involved in learning;

5. provide immediate knowledge of results.

CAI programs of the future may permit students to:

1. ask questions and make responses in their own language;

2. communicate with other CAI users;

3. branch themselves to special parts of the programs and even exercise complete control over the CAI environment.

Teacher Classroom Functions

Confronted with machines that can test, review, drill, teach, motivate, and even diagnose, teachers might well reexamine their classroom functions. Which of these functions could be preempted by CAI? How can the teacher work with CAI? Which areas will most likely remain beyond the reach of CAI?

CAI will release the teacher from involvement in drill sessions. Teachers in CAI environments will not have to teach basic skills in reading, mathematics, or language arts. Students will also learn many advanced skills and even be expected to think creatively about problems.

Teachers will then be free from involvement in repetitive exercises and freed from the tedium of paper correcting. However, machines can only teach the material they have been programmed to teach. Who will write the programs and design the curriculum? Atkinson estimates that ". . . a typical lesson in the reading program, which takes the average student about 30 minutes to complete, requires in excess of 9,000 course-writer commands for its execution." Some teachers will spend the many hours necessary to prepare lessons--lessons which will then be taught to thousands of students over wide age spans.

Suppes (1966) considers the organization of the curriculum to be of primary importance.

> For example, in what order should the ideas in elementary mathematics be presented to students? In the elementary teaching of a foreign language, to what extent should pattern drill precede expansion of vocabulary? What mixture of phonics and look-and-say is appropriate for the beginning stages of reading?

Teachers will have to make decisions like these based on knowledge of their specializations and on knowledge of their students' special needs, both personal and academic.

Goodlad (1969) envisions education in the year 2000 as a computer-related environment in which teachers would play diversified roles. In addition to CAI lesson preparation and curriculum planning, teachers promote group interaction and intellectual dialogue, ". . . staff the counseling centers and . . . engage in presentations viewed and responded to on home and 'community' terminal screens. Others would evaluate [CAI] in order to determine the effectiveness of instructional programs." Change means not just adding something new but involves a redesigning of the entire system.

Bell (1974) believes that students should be given significant control over the computer and associated instruction as hardware in the learning environment. In the computer-related environment of the future, students will be required ". . . to select their own problems to solve, to phrase problems in terms amenable

to attack, to choose their own plan of attack, to make appropriate modifications when things go wrong, to decide if the answer is correct, . . ." The teacher will then be a resource person in this student-controlled learning environment in which students and teachers cooperate to improve education. ". . . Teachers can be more flexible and can interact more effectively with each student than can a computer program." Students on CAI may wish to request help from a human teacher especially if they fail to comprehend instructions, or if they find the machine explanations or answers unacceptable.

Pressey (1964) reminded us that we must consider the problem of transfer. "How much does practice in an autoinstructional language laboratory improve real-life use of the language?" Students involved in autoinstruction may also lack awareness of the total structure of the task in which they are involved. Schoen (1974) mentioned the importance of having elementary school children manipulate physical objects. Teachers will then have to teach for transfer and supplement CAI instruction with field trips, class projects, and an enriched "real life" classroom environment.

Schoen observed that computers will probably not be able to accommodate instruction to students displaying different personality types or cognitive styles. It is difficult to imagine how CAI will accommodate extroverted, introverted, dependent, and independent types of learners. Therefore, teachers will need to guide students to appropriate CAI programs and schedules.

Teachers in computer-related environments will still have to acquaint their students with books. Asimov's (1974) defense of books in preference to tape cassettes and other audiovisual equipment applies equally to the convenience of using books in preference to CAI. Books are portable, require no energy that will place a strain on the environment, need no special equipment, can be used anywhere (in bed, in a tree, in the bathtub), have controls that can be operated by the will, can be played or used at any speed, and advanced or reversed easily. Books permit users to fashion their own displays and images which Asimov says are ". . . infinitely better for you than those wished on you by others. The book offers a relationship that is made to order by the reader himself and fits his own peculiarities." When one reads a book, one creates one's own images including the sound of various voices, gestures, expressions, and emotions. "And if you take the slightest pleasure in creation, the book has given you something the television programs can't." The reading of books demands much from the reader and Asimov contends that reading must be carefully taught. Books, however, will not be replaced. "The book may be ancient, but it is also the ultimate, and the reader will never be seduced away from it."

CAI then will probably not replace books. Over one hundred years ago, Newman dealt with the argument that books would or could replace teachers. Teachers would always be important in education, Newman believed, because enthusiasm and interest in an academic discipline can only come from those in whom this special excitement

already lives. We must come, Newman said, to teachers of wisdom to learn wisdom.

Mesthene (1970) warns of the pitfalls surrounding CAI for "We are trying only to do better and faster what is beind done less well and more slowly. But much of what we are now doing in education may be wrong . . ." Also there is more to education than the promotion of skills--

> Education also has the functions of socializing individuals, of shaping their values, of preparing for citizenship, of conserving traditions, and of imparting some sense of awe before the wonders of the universe.

Summary

The teacher of the future will be a professional with a formidable array of skills and abilities. These competencies will or should include familiarity with CAI languages such as Coursewriter, Basic, or Tutor. Teachers will need a broad background in many related academic areas, knowledge of learning theory and curriculum strategies, and the ability to counsel students and guide them in planning their educations.

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SECONDARY TRENDS: INSTRUCTIONAL FRAMES AND OTHER CONTENT GAMES

JOSEPHINE S. GOLDSMITH
RUTGERS COLLEGE

The field of secondary reading has developed with a steady if not dazzling rapidity away from the remedial and elementary models with which it began. A birth date for the field, or at least a name day could be set with the appearance of the Forty-Seventh Yearbook of the National Society for Study of Education in 1948. This volume represented an official recognition by educators that neither reading problems nor the need for continuing instruction stop suddenly at Grades 6 or 8. This volume was seminal in stressing the need for supportive developmental reading instruction for young adults. It is a nice historical tidbit that Nila B. Smith traces the first use of the phrase "developmental reading" to Guy Bond in the Yearbook (Smith, 1964, p. 297).

Although the Forty-Seventh Yearbook presents what is now 28 year old news, the concept of secondary developmental reading instruction is still too radical or frilly for many school systems to adopt. In a 1972 survey of 50 state departments of education and 185 selected districts, Freed (1973) investigated requirements for junior high and high school reading programs. She found that, while districts tended to go beyond state mandates, the total showing was still thin. Although 55% of the districts stated that they required reading in junior high and 22% in senior high, pressing the question revealed that the requirement was applied to all students in only 28% of junior and 5% of the senior high schools surveyed. It is not atypical in New Jersey districts to place the more able seventh graders in a language program and the less able in developmental reading. In many secondary schools it is considered a luxury for the reading specialist to leave the disabled readers and allow time for content area consulting. To discuss reading honorably in a secondary setting, we seem to need to imply that someone has a problem. The remedial model rides again!

Reading disability obviously does exist on a secondary leve. and deserves careful expert attention. Attending to remedial reading by itself, however, does not constitute a proper secondary reading program. Developmental programs cut a wider swath. Broadly defined they encompass attention to reading development which occurs in subject area as well as reading classes. Developmental reading takes the slightly sub-average, average, and superior readers some steps further along in skills.

While it is easy to advocate developmental reading programs across the board for secondary schools, it is a much trickier undertaking to specify with any confidence what their structure and emphasis ought to be. Presently, the field presents a variety of approaches. Unfortunately, there is little theoretical underpinning and almost no attempt to test the usefulness of various

methods in a controlled fashion. In short, secondary reading offers a cluster of approaches which have some curricular or surface validity only. We have, in fact, no evidence that using one approach is better than another for given student groups or better than doing nothing at all. It will be the purpose of this paper to review current trends and recent approaches to the teaching of secondary reading, stressing those which are developmental rather than remedial in emphasis.

Skills Approaches

Most methods for secondary developmental reading are undergirded by, or at some point suggest, the use of a skills list or hierarchy. Skills hierarchies represent a hypothesized set of operations which students perform in order to deal with reading material successfully. Hierarchies may cover skills suitable for prereading to those appropriate for graduate student use. Most have a grass roots origin in district curriculum guides. The Wisconsin Design, a comprehensive reading management system, incorporates an extensive skills hierarchy developed from the curriculum guide for reading of the Madison Public Schools (Otto & Askov, 1974). Skills are divided into six areas: Word Attack, Comprehension, Study Skills, Self-Directed Reading, Interpretive Reading, and Creative Reading. Behavioral Objectives are provided in three areas: Word Attack, Comprehension, and Study Skills. For the other areas, "open objectives" (p. 16), are stated. Even if the Wisconsin design is not in use in a school system, the Rationale provides a detailed skills hierarchy which has achieved high ratings for thoroughness and classroom utility (Kling, 1975). The hierarchy in the design would be exceedingly helpful for teachers who wish to incorporate skills teaching into their subject area lesson plans. Appendix A shows a sample of Comprehension skills from Level G, the highest in the hierarchy. These skills can be applied to a wide variety of middle and secondary subject lessons.

Another highly usable skills hierarchy is one developed by the Bureau of Curriculum Development of the Board of Education of the City of New York. The New York guide uses an ungraded, but sequential organization. Level A is labeled, "Developing Prereading Skills," Levels B-D, "Initiating and Developing Basic Reading Skills," and Levels E-H, "Extending, Refining, and Applying Reading Skills" (Board of Education, City of New York, vii). These skills, planned to be applicable from Pre-Kindergarten through Grade 12, offer a rich source for development of skills based lesson plans. One strong feature is that thinking skills (getting the main idea, determining sequence, drawing inference) are introduced as early as Level B. Behaviors are described fully enough to allow for easy transfer to the classroom.

More difficult than the issue of where to find a skills hierarchy is the question of which skills to select for teaching in specific grade levels and subject areas. Attached to this question are concerns about a useful plan for assignment of skills. Should specific skills be taught in reading class and then trans-

ferred, or directly in subject areas? Is possible duplication of skills teaching inefficient? Some districts prefer an overall skills plan where given subskills are designated for teaching in given grades and tracks. The advantage to this plan is that the teaching of key subskills is not neglected. Difficulty, however, typically arises when material assigned for the grade is not a useful vehicle for the assigned skills. Skills which were developed as means to help students cope with reading materials begin to assume a life of their own. Perhaps the goal needs clarification: is teaching a SKILL an aim in itself, or is skills teaching viewed as a method to help children develop towards reading independence? It might be fitting for reading experts to develop some humility in this area, especially when we notice the atheoretical untested quality of the hierarchies. The higher the thinking level on which the skills based, the less data appeara available and the more treacherous this issue becomes. Otto and Askov (1974) report validation studies on the Word Attack component only. Their discomfort at the intuitive base is for the hierarchy is apparent in the preface.

> Although an empirically derived statement of skills remains to be worked out, the credibility of the statement chosen was good. The implicit assumption was that the scope and sequence statements in curriculum guides are generally ignored because they lack supporting components, not because they are without value. (Otto & Askov, p. 6)

Directed Reading Approach and Relatives

The Directed Reading Approach (DRA), a spin-off of the elementary teacher's basic reading lesson paradigm, is the grandfather of approaches to what is now called, "teaching of reading in content areas." Manuals for basal reader series rather uniformly suggest a lesson plan incorporating the elements of motivation, vocabulary teaching, directed silent reading, oral reading, skills development, and enrichment.

Applications to the secondary field are numerous (Karlin, 1972; Marksheffel, 1974; Robinson, 1975; Thomas & Robinson, 1972). Secondary DRA's usually combine elements of motivation, vocabulary teaching, guided silent reading, and evaluation. The DRA can be expanded to include skills teaching, affective elements, and a great deal of flexibility for students to follow their individual interest.

Secondary DRA approaches vary in complexity and length. Marksheffel (1975) makes a strong case for the necessity of a DRA approach to high school and college assignment time. He presents a very compact DRA with three components: vocabulary, purpose setting, and concept development. In contrast to this compact model, Thomas and Robinson have presented elaborate DRA plans with extremely detailed reading guides in a variety of subject areas (Thomas & Robinson, 1972).

Stauffer has developed a notable version of the DRA, his DRTA. The T stands for thinking, predictably for Stauffer's cognitive bent. In this approach, both student and teacher are asked to "feed forward," that is to set purposes for reading and to predict upcoming content on the basis of a survey and past experience with similar materials. The basic steps are (1) "Identifying purposes for reading, both for individuals and the groups" (2) "Adjusting rate of reading to purposes . . . and difficulty of material" (3) "Achieving reading purposes" and (4) "Developing comprehension" (Stauffer, pp. 36-37). Since the preceding represents a very truncated selection from Stauffer's complex procedure, the reader is encouraged to check the full reference. Although the DRTA is discussed in the context of elementary reading group instruction, it has rich implications for content area teaching. The procedure of activating students to pose their own purposes and questions is soundly in line with information processing literature which portrays reading as an active selective process in which the reader uses a wide variety of cues from the text (Levin & Williams, 1970; Smith, 1971).

Instructional Frame

Herber (1970) has criticised the DRA for what he sees is a lack of specificity in guiding students through the substeps of the comprehension process. His instructional frame, a major development in secondary reading techniques, provides a simulation model for learning. The teacher is asked to hypothesize which particular thinking operations a student must engage in in order to master a reading assignment, then to develop exercises to "walk" the students through these steps. An instructional frame looks like a detailed multiple choice exercise. The aim is to select a point of comprehension for development and provide a wide variety of correct and incorrect alternatives from which the student must select.

Appendix B shows part of an instructional frame developed for word problems by a graduate student for use in a junior high school math class (Rabinowitz, 1975). From experience, this teacher found that students had particular difficulty in selecting key information needed to solve problems. The frames included show two exercises designed to provide practice in these skills. One exercise forces students to select the irrelevant fact included in the problem; the other asks them to state a key bit of information which would be needed for solution.

Appendix C shows an instructional frame for an 11th grade English class developed for Housman's "To an Athlete, Dying Young." The teacher wished the students to infer Housman's point of view about the death of the young athlete. Rather than engage in a global discussion, the frame forces students to judge the bias in individual phrases and then weigh the burden of total evidence. After the students work on the frame, the most fruitful part of the lesson occurs as they present their inferences and are challenged to support them. This type of frame has wide application to many

types of higher level critical thinking skills. Students are forced to provide supportive evidence for their inferences and to become aware of the varied techniques by which writers communicate tone and point of view.

Herber has made a strong point of the goal of developing reading independence as the end product of guided instruction. He is impatient with the tendency for teachers to engage in "assumptive teaching" (1970, p. 29), to take for granted that students possess the skills or knowledge necessary to deal with new content. For him, questioning techniques need to be supported by simulations which help students through the processes necessary to arrive at the answer (Herber & Nelson, 1975). Students are guided through a stage of dependence during which they internalize the models necessary in order to be able to operate at higher critical levels in their reading.

Content Approaches

Many texts and articles in secondary reading now take the position that skills and processes needed in various subject matter areas are diverse enough to need special treatment and development. Dimensions such as the typical organizational patterns of the material, the density or number of new concepts, the load of new vocabulary items and the suggested speed all differ from subject to subject. Thomas and Robinson (1972), Aukerman (1972), Robinson (1975), Karlin (1972), and Dechant (1973) devote sections or chapters to specialized subject areas. Thomas and Robinson and Aukerman offer the most detailed lesson plans. IRA monographs have been devoted to the special problems of reading in areas such as social studies (Preston, 1969) and science (Thelen, 1976).

Concentration on reading lessons for special subject areas certainly obviates the problem of transfer. This seems a singular improvement over the typical secondary model where the teachers of English are charged as repositories of all reading skills instruction which is then expected to generalize to other classes. The model of the reading process implied here appears to be a multifactor one. It is assumed that rather than a global construct, reading comprehension consists of multiple separable subskills which need to be learned. Whatever the ultimate validity of this model, like the others it lacks support from theoretical or data based studies.

Cognitive Processing Approaches

Some new approaches to reading comprehension have veered away from classifying every more specific subskills to examination of underlying processes (Gerhard, 1975; Henry, 1974). Highly influenced by Piaget's thinking, these methods hypothesize fundamental thinking operations which are assumed to be a basic component in dealing with paragraphs or larger units in reading.

Henry views reading as "the use of the modes of analysis and synthesis within the medium of written or printed language" (p. 4). Analysis is the process by which the relations within a single work are deduced. The students then synthesizes these relations to form a hypothesis or concept about the work. Concept development includes two steps: "(1) the discovery of relation and (2) the invention of structure" (p. 10).

To help students synthesize: to develop concepts, there must be the activation and integration of four logical operations: joining, excluding, selecting, and implying (p. 25). Although Henry's discussion and examples center on literature, the method is applicable to many content areas. Social studies, sciences, fine and industrial arts are replete with opportunities for the joining and excluding operations he suggests.

Henry has criticized the teaching of literature for its concentration almost totally on the analytic phase. He holds that the "good discussion" of the English class lacks the cognitive structure which he views as essential. He is also critical of the multiple skills approach since he views this as preventing the student from discovering his own set of relations.

Concept Development, à la Henry, does present a definite structure of operations. Students are guided through a reading algorithm consisting of the elements of joining and disgarding to form a created condition (the concept) then "drawing an implication from the created condition" (p. 19). At this point, a concept that has been established is tested both by checking it for validity against the passage from which it was drawn and extrapolating it into the area of the student's experience.

If a Herber's instructional frame tends to look like a complex multiple choice test sheet, a Henry Concept Development exercise resembles a Venn diagram. Appendix D shows a Concept Development exercise for two poems: Housman's "To an Athlete, Dying Young" and Robinson's "Richard Cory." While the instructional frame model leads students toward the teacher's preconceived goal through a variety of inferential steps, the concept development exercise, although structured in approach, is more open in conclusions. The top part of the exercise takes the students through "To an Athlete, Dying Young" in a concept development paradigm involving the four steps suggested by Henry. At the completion, students would have developed, with teacher guidance, their own constructed concept of what Housman was saying about fame and would have checked this idea back against the poem and against their own information from experience. These last steps are highly reminiscent of Bloom's Evaluation--judgment in terms of internal evidence and external criteria (Bloom & Krathwohl, 1956). The set diagram suggests a direction in which discussion might go to synthesize or relate Housman's poem to "Richard Cory." Each circle represents one poem: the small letter shows the elements distinct to each. The x area indicates overlap: shared ideas, views, themes. After analyzing each work separately, students would be led through exer-

cises in which they worked at discovering the commonalities.

Gerhard (1975) has presented another cognitive processing approach. His method is both more structured and more reductionistic than is Henry's. Gerhard views comprehension as reducible to a process of categorizing. His work presents a somewhat more closed system in process. He does, however, include detailed suggestions for essay writing as well as reading, and provides an expanding structure which would seem to encourage students toward fuller expression in their writing. Both Gerhard's work and that of Henry provide rich suggestions for classroom development.

Cognitive processing approaches fall in line with a reading tradition initiated by Thorndike in his Reading as Reasoning (1917) and most recently, vigorously upheld by Stauffer (1971). It appears a healthy trend that the minutiae and specificity of behavioral models are offset by this cognitive trend.

Selecting an Approach

Obviously, the decision as to which route or combination of features to select in developing secondary reading programs is a matter for staff and administration of individual schools to decide. The reading field itself has left far behind the question of whether secondary reading instruction ought to take place. It is essential as long as schools feel a commitment to guiding advanced learning and developing thinking skills.

Clearly program choice should be heavily influenced by the learning characteristics of a particular school population. Yet, the question of which approach is most useful for which groups of students remains an unexplored landscape. Close cooperation between school and university staffs where research projects might be jointly designed and implemented might present a beginning to the exploration of these urgent questions.

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APPENDIX A

FROM OUTLINE OF READING SKILLS, THE WISCONSIN DESIGN FOR READING SKILL DEVELOPMENT

COMPREHENSION

Level G

1. Determines sequence: multiple explicit relationships[1]

   Objective: The child determines the order of events in paragraphs with multiple explicit sequential relationships.

2. Uses logical reasoning

   a. Reasons deductively[2]

      Objective: The child identifies the correct conclusion to a syllogism with one major and one minor premise embedded in context.

   b. Reasons inductively[3]

      Objective: The child infers a general principle from a selection in which specific pieces of information supporting that general principle are given.

3. Uses context clues: obscure meanings of familiar words[4]

Objective: The child determines the obscure meaning of a familiar word in context by using the contextual devices of cause and effect, direct description, and contrast.

* * *

APPENDIX B

INSTRUCTIONAL FRAME FOR WORD PROBLEMS FROM RABINOWITZ, 1975

Finding What Is Missing

In each of the following questions, one necessary fact has been left out. What fact would you have to know to answer the question?

1. A man bought 4 shirts. How much did he pay for them?
2. If Charles saves $2 per week, how many weeks will it take him to save enough money to buy a portable radio?
3. If you bought a bat and 2 balls for a total of $8, what did you pay for the bat?
4. Wallace bought a bag of potatoes for 35¢. How much did he pay for a pound of potatoes?
5. Sarah paid $3 for butter. What was the cost of a pound of butter?
6. At $23 per ton, what is the cost of a load of coal?
7. Ed spent 3 minutes reading a page in a book. How many words can Ed read in one minute?
8. If you buy 3 ties, how much change should you receive from a $10 bill?
9. Saul can drive his small car 35 miles using only one gallon of gas. He took a long trip by automobile. How many gallons of gasoline did he use?
10. Mark bought a television set costing $145. He made a down payment of $45 and paid the rest in equal weekly payments. How many payments did he have to make?
11. Charlie spent $5.00 for a few shirts. How much did he spend on each shirt?
12. Jane went 3 miles in 25 minutes. How long did it take her to get to her grandmother's house?

13. Shelly met 5 of her friends and they all decided to go to the movies. How much did it cost them altogether?

Finding What is Unnecessary

In each of the following problems, there is one more fact than is necessary for solving the problem. State the unnecessary fact and then solve the problem.

1. How many boxes are needed to package 100 pounds of rice that sells for 23¢ per pound if each box is to contain 2 pounds of rice?

2. Mr. Simpson made a trip of 180 miles. His car needs 1 gallon of gasoline to travel 12 miles. How many gallons of gasoline that costs 32¢ per gallon did he use?

3. A salesman received a weekly salary of $75. In addition, he gets $2 extra for each article he sells. How much extra did he receive if he sold 37 articles?

4. Alan needs 4 feet of lumber to make a shelf for his bookcases. How many shelves can he make from a piece of lumber that is 13 feet long and costs 34 cents per foot?

5. How much change should Anne receive from a $10 bill if she bought 6 pairs of stockings at $1 per pair and 3 handkerchiefs for which she paid $3?

6. Find the cost of 4 tires, each weighing 21 pounds, if the cost of one tire is $27.

7. Find the cost of 3 tablecloths, each 108 inches long, if one tablecloth costs $18.

8. Jane's mother has 6 children. How many girls will she have if she just had 2 twin girls and these girls have 5 older sisters?

9. Joe bought a blue sweater on sale for $8.00 cheaper than the original price of $25.00. He saw the same sweater in another store for $29.00. How much did he pay for the sweater?

* * *

APPENDIX C

TO AN ATHLETE DYING YOUNG

The time you won your town the race
We chaired you through the market-place;

Man and boy stood cheering by,
And home we brought you shoulder-high.

Today, the road all runners come,
Shoulder-high we bring you home,
And set you at your threshold down,
Townsman of a stiller town.

Smart lad, to slip betimes away
From fields where glory does not stay,
And early though the laurel grows
It withers quicker than the rose.

Eyes the shady night has shut
Cannot see the record cut,
And silence sounds no worse than cheers
After earth has stopped the ears:

Now you will not swell the rout
Of lads that wore their honors out,
Runners whom renown outran
And the name died before the man.

So set, before its echoes fade,
The fleet foot on the sill of shade,
And hold to the low lintel up
The still-defended challenge-cup.

And round that early-laureled head
Will flock to gaze the strengthless dead,
And find unwithered on its curls
The garland briefer than a girl's.

A. E. Housman

Instructional Frame: To an Athlete Dying Young

Below are a list of phrases or sentences from the poem, each followed by 2 blanks. Reread the poem carefully, then mark the first blank with an L if it refers to life, D if it refers to death. If you think neither choice is appropriate, use a zero (0). Judge whether each of the phrases suggests a positive or negative attitude of life or death. If you feel it is positive, put P in the second blank, if negative, N. If you feel that the attitude in this instance is neutral, use 0.

Looking at the total picture, what conclusion can you draw about the poet's attitude toward the death of the athlete?

Add up your totals in the four categories to support this conclusion, placing the totals in the boxes marked, LP, LN, DP, and DN.

Find another phrase from the poem not used in this exercise which

supports your conclusion.

Be ready to defend each of your choices along the way as well as the final conclusion.

1. the name died before the man _____ _____
2. townsman of a stiller town _____ _____
3. the still defended challenge cup _____ _____
4. silence sounds no worse than cheers _____ _____
5. smart lad to slip betimes away _____ _____
6. we chaired you through the market-place _____ _____
7. runners whom renown outran _____ _____
8. set . . . the fleet foot on the sill of shade _____ _____
9. and find unwithered on its curls that garland _____ _____
10. eyes the shady night has shut/cannot see the record cut ___ ___
11. man and boy stood cheering by _____ _____

LP	LN	DP	DN	LO	DO

Housman's point of view on the athlete is _____

_____

Another phrase or sentence from the poem which supports my point of view is

_____

because _____

_____

APPENDIX D

RICHARD CORY*

Whenever Richard Cory went down town,
  We people on the pavement looked at him:
He was a gentleman from sole to crown,
  Clean favored, and imperially slim.

And he was always quietly arrayed,
  And he was always human when he talked;
But still he fluttered pulses when he said,
  "Good morning," and he glittered when he walked.

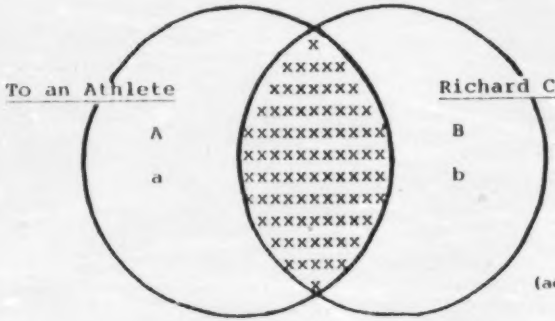
And he was rich--yes, richer than a king--
  And admirably schooled in every grace:
In fine, we thought that he was everything
  To make us wish that we were in his place.

So on we worked, and waited for the light,
  And went without the meat, and cursed the bread;
And Richard Cory, one calm summer night,
  Went home and put a bullet through his head.

---

*Richard Cory: From the Children of the Night, 1897, by Edwin Arlington Robinson.

Concept Development Exercise for Richard Cory and To an Athlete, Dying Young



(adapted from Henry, p. 31)

Portions of the circles which do not overlap represent themes, values and ideas which are not shared by the two poems. The x area represents commonalities. The following are sets of questions designed for the first part of this three-part exercise: analyzing "To an Athlete Dying Young."

Analysis: To an Athlete, Dying Young

(1) Joining

Notice how the poet makes a continuous set of comparisons between what happened to the athlete in life and after death and between this athlete who died young and those who survive. Find and examine some of these comparisons. Why does he make the two home-coming incidents so close in every detail? Is there triumph in only one or both? Compare th two "towns."

What incidents does Housman predict typically happening in the life of an athlete who does not die young? What kind of comparison does he use in the last two lines of stanza #5?

(2) Implying

What is Housman implying here? Is the athlete's death a tragedy or in some way a triumph? Explain.

(3) Predicting

What kind of feeling would Housman probably have about fame in other areas: politics, music, scholarly research? What might he predict for the high school student government president or the captain of the football team? Do you agree?

(4) Interpreting: Internal

Check back to validate your conclusions from the poem. After re-reading, report on whether your original opinion is shifted, altered, or largely unchanged.

(5) Interpreting: External

Have you ever known of a famous athlete who was killed at an early age? What were your reaction and those of your friends? Did you share Housman's pessimism or were your feelings very different? Do you know of anyone famous who suddenly dropped out of sight? Think of Olympic medal winners, rock star singers, presidential contenders. In your experience, is Housman's point of view valid?

SUPPLEMENTARY MATERIALS FOR
GOLDSMITH-HEILMAN WORKSHOP

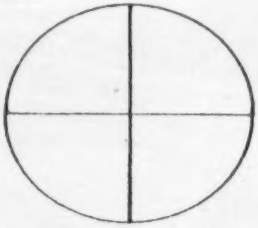
Sequential Levels of Reading Skills--
Pre-Kindergarten-Grade 12

Bureau of Curriculum Development:
Board of Education of the City of
New York

Developing Word Power
- Expanding Oral Vocabulary
- Building a Reading Vocabulary
  - Acquiring Sight Vocabulary
  - Using Phonic Analysis
  - Using Structural Analysis

Getting and Interpreting Meaning
- Getting the Main Thought
- Finding the Relating Details
- Determining Sequence
- Drawing Inferences
- Critical Reading
  - Distinguishing Between Fact and Opinion
  - Using Logical Reasoning to Recognize Sales and Propaganda Techniques

Developing Work-Study Skills
- Following Directions
- Locating Information
- Using Graphic Representations (maps, globes, charts, diagrams)
- Mastering the Mechanics of Silent and Oral Reading



HERE AND NOW WHEEL

Write the four skills which you consider most important in the sections of the Here and Now Wheel. Then decide which you consider to have the most relevance for your students. Be ready to defend your choice.

TEXT SAMPLE #1

POLLUTION: THE POISONING OF OUR ENVIRONMENT

During one week in August 1970, the following things happened around the world:

In Tokyo, Japan, the smog was so thick that children playing in a schoolyard had trouble breathing and began to faint. During the week, more than 8,000 people went to hospitals for treatment of sore eyes and throats.

People in Sydney, Australia, had to breathe air that smelled like rotten eggs. They could not use the beaches because the waves washed oily wastes onto the sand. An oil company was blamed for polluting the air and water with hydrogen sulphide, a poisonous chemical.

In the United States, polluted air hung over eastern cities from Boston to Atlanta. When it rained, soot dripped out of the air onto people's clothes, hair, and skin.

These examples show that pollution, the poisoning of the environment, is a worldwide problem. Most major pollution problems begin in industrial countries, but they affect the whole world. Chemicals and poisonous wastes of all kinds are dumped into lakes and rivers. These poisons find their way to the oceans. Winds blow polluted air over thousands of miles of land and water. Pollutants, or impurities, in the air fall to earth with the rain. They, too, drain into the oceans. Why does man poison his land, air, and water? Why is pollution a major problem in our time? What can be done about it?

Technology, Urbanization, and Pollution

Advanced technology has greatly increased the rate at which man is polluting his environment. Should we, then, give up the benefits of science and technology? Can we do this?

Many technological advances now seem like necessities to people in the developed countries. They expect industries to expand. Their economy is based on machines, specialization, and energy from fuels. They continue to take minerals from the earth and lumber from the forests. They expect food crops enriched by fertilizers, and protected against pests by insecticides.

Urbanization and a rising growth rate in population both contribute to the pollution problem. When many people are crowded together, they produce much waste. The amount of sewage, garbage, and smoke increases as the city grows. Eventually, the air, the water, and the soil become poisonous; the ecological balance may be

upset. The poisoning is increased by factories that pour out smoke and chemical waste. It is increased by smoke from power plants and incinerators, and by the fumes of hundreds of thousands of automobiles.

Most big cities are troubled by several kinds of pollution problems. The most serious of these are the problems of air and water pollution.

Adapted from "Challenges of our Time: Technology: Promises and Problems." Social Sciences staff of the Educational Research Council of America, 1972, pp. 105-107.

* * *

TEXT SAMPLES #2

EMOTIONAL GROWTH

The Emotionally Mature	The Emotionally Immature
Are considerate of others	Are selfish and self-centered, with little consideration for others
Accept pleasures gracefully and enjoy sharing them with others	Constantly seek pleasures without regard for others
Channel emotional drives into constructive activity	Yield quickly to emotions in such explosive behavior as crying spells, depression, pouting, and temper tantrums
Accept disappointments and reverses with courage and composure	Become angry or depressed in the face of disappointments and reverses
Are confident of success and are willing to work for it and to wait	Are impatient for success and often unwilling to work for it
Adjust to other people and create a relaxed and pleasant social atmosphere	Fail to adjust to other people and create a tense and unpleasant social atmosphere

---

Love--the basis of happiness. Suppose someone asked you what the word love means to you. You would probably have several answers. Love is one of the most abused words in our language. You say that you "love your mother." In the next breath, you may say that you "love ice cream." Or you might say that you have "fallen in love."

No matter how you use the word, you always associate love with pleasure. There are, however, many kinds and degrees of love associated with various external conditions and situations.

Self-love. Of all forms of love, self-love is most basic and is experienced at the earliest age. This love is entirely self-centered and relates directly to the feeling of security and well-being. Thus, this form of love is closely related to the instinct of self-preservation.

The baby is the center of his small world. He soon learns to love those who care for him and make him comfortable. As the child matures, he develops a capacity for other forms of love. Self-love remains as a foundation for self-respect, ambition, and personal satisfaction. It is undesirable in an adult only when it remains the dominant form of love in the behavior pattern. A completely self-centered person whose love is limited to himself is childish.

Give-and-take love. As intelligence and the capacity for reasoning become more and more controlling influences, another expression of love develops. We often refer to love at this level as give-and-take love.

Thus, give-and-take love is reciprocal; that is, giving in order to receive. You see give-and-take love at a sharing table in a kindergarten in which the children share experiences, in gift exchanges, or when a husband surprises his wife with an unexpected present to delight her and, in turn, to increase her love for him. While give-and-take love may seem out-going and unselfish, it is basically self-centered.

Romantic love. With the onset of sexual maturity, physiological and chemical changes in the body are accompanied by sweeping mental, emotional, and personality changes. The boy or girl becomes aware of interest in the opposite sex. Romantic love becomes a powerful drive and a tremendous influence on behavior. This love expression may completely dominate the personality. Romantic love is so strong that it may temporarily "blind" a person to the faults and shortcomings of another. This can lead to an unfortunate and unhappy marriage with resulting tragic consequences. On the other hand, controlled by reason and intelligence, romantic love can be a powerful motivating force toward a happy marriage and a wholesome family life.

Mature love. Mature love is a blend of all forms of love and an expression of emotional and intellectual maturity. It is the basis of family life and the basis of satisfaction and happiness. Mature love involves admiration, respect, and the pleasure of sharing and providing for others. Mature love is far more outgoing than more basic forms. Parents strive for the happiness of their children and for each other. A person feels a responsibility for his society.

The emotionally mature person has learned that he must have

enough self-love to enjoy self-respect and personal satisfaction. He works out his relationships with others on the give-and-take level. By so doing, he assumes responsibility for the rights and feelings of all.

Altruistic love. Ideally, there is a stage of love which goes beyond the stages we have discussed. We refer to this type of love as altruistic love. It is not as clearly defined as are other types of love. It may be merely other stages of love carried to the highest level and motivated by high ideals and dedication to humanity. Altruistic love is not entirely selfless as there is self-satisfaction in serving others, even is no material reward is obtained. People who feel this love devote much of their lives to serving humanity. You may find them working in hospitals without compensation, doing social work, or serving as missionaries. Into this category we might also place, the philanthropist who makes anonymous gifts to projects aimed for the improvement of mankind.

From Otto, J. H., Jalecin, C. J., & Tether, J. E. Modern Health. New York: Holt, Rinehart & Winston, 1971, pp. 73-77.

* * *

TEXT SAMPLE #3

WAVES

Have you ever seen an ocean wave? Sound energy travels in waves. But sound waves cannot be seen. To understand wave motion it is helpful to consider waves which you can see on water. Many of the principles you learn from these waves will also be true for sound waves. These principles can also be applied to the study of light energy in Chapter 12.

When a rock is thrown into the middle of a calm pond, a water wave is produced. The wave travels outward, forming a circle from the point where the rock hit. This wave may be followed by observing floating objects in its path which move up and down as the wave passes. Objects close to the origin of the wave are pushed up and down more energetically than those farther out. (Figure 11-6.) The kinetic energy of the moving rock is changed into kinetic energy away from the center of impact. Waves carry energy from one place to another. As a wave travels outward from the center of impact, its up and down motion decreases gradually. Its motion will eventually decrease and disappear.

A water wave consists of a hill and a valley. (Figure 11-7.) The hill is called the crest. The valley is called the trough (trawf). The distance from the crest of one wave to the crest of the next wave is the wavelength. If a large, heavy rock is thrown

into a pond, it will release a great deal of energy, and the wavelength will be large. This wavelength will be much greater than the wavelength produced by a tiny pebble.

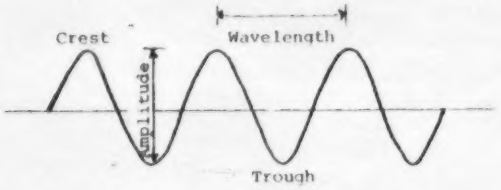


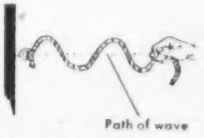
Figure 11-7. Particles of a wave move up or down from their midpoint position.

The height of the crests and the depth of the troughs are also greater for waves produced by a large rock. We call the height of a wave crest, or the depth of a trough, the amplitude (am´plih-tood) of a wave. Amplitude is the vertical distance through which the particles of a wave move. (Figure 11-7.)

Two kinds of waves are transverse and compressional. The wave produced on a pond is a transverse wave. In a transverse (tranz´vurs) wave, a substance vibrates at a right angle to the direction in which the wave is traveling. Matter vibrates in an up and down motion as the wave travels forward. Light, heat, and radio waves are transverse waves.

Experiment. A transverse wave may be observed with a piece of rope. Attach the rope at one end. Snap the free end of the rope quickly. Do you see the wave that moves along the rope? The wave travels along the rope, away from its origin. Each part of the rope moves up and down. This up and down movement is at a right angle to the path of the wave. (Figure 11-8.)

Figure 11-8. When the rope is snapped with greater force, the additional kinetic energy produces higher crests and deeper troughs.



From Heimer, C. H., & Neal, C. D. Principles of Science. Columbus, Ohio: Charles E. Merrill, Inc., 1966.